

**Commonwealth of Kentucky**  
**Division for Air Quality**  
***PERMIT STATEMENT OF BASIS***

(DRAFT)

Conditional Major, Operating

Permit: F-07-024

CC Metals and Alloys, LLC

Calvert City, KY 42029

July 9, 2007

Min Wang, Reviewer

SOURCE ID: 21-157-00002

SOURCE A.I. #: 2930

ACTIVITY ID: APE20060002

**SOURCE DESCRIPTION:**

CC Metals and Alloys, LLC (formerly SKW Alloys, Inc.) produces ferrosilicon and various ferroalloy specialty products. Primary emission units include three submerged electric arc furnaces with associated stirring stations, tapping operations; crushing and sizing operations; a stabilizer and drying operation; and material transfer and storage operations. The Standard Industrial Classification (SIC) Code for this source is 3313, *Electrometallurgical Products*.

This source is part of the iron and steel mill source category, pursuant to 401 KAR 52:001, Section 1(45)(b)4.e. However, this notwithstanding, this source belongs to a stationary source category, ferroalloy production, for which 40 CFR 60 Subpart Z, *Standards of Performance for Ferroalloy Production Facilities*, applies, pursuant to 401 KAR 52:001, Section 1(45)(b)4.aa. Therefore, fugitive emissions shall be considered in determining if the source is a major source.

The potential to emit (as defined in 401 KAR 52:001, Section 1 (56)) of particulate matter less than ten (10) microns (PM<sub>10</sub>) is greater than major source thresholds. To preclude the applicability of 401 KAR 52:020, *Title V Permits*, the source has requested voluntary federally enforceable permit limits such that the potential emissions are below major source thresholds. Therefore, the source is subject to the provisions of 401 KAR 52:030, *Federally-Enforceable Permits for Nonmajor Sources*.

This permit is the initial issuance of the source's Conditional Major permit, for a permit application received November 13, 2006. A permit application for a Title V permit was originally received December 16, 1996, with additional information received February 10, 1997. An addendum was received February 5, 2002 for the manufacture of ferromanganese and silicomanganese. Since that time, CC Metals has determined that silicon metal, ferromanganese and silicomanganese will not be manufactured, and such products are not included in this approval.

**COMMENTS:**

The following table provides a concise summary of the emission units at this source by emission point number, and any changes at the source since the issuance of the latest operating permit O-87-130, issued to SKW Alloys, Inc. February 2, 1988.

Emission Points – Current Status	Emission Points – Permitted	Explanation of Change
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New EP	New Description	Old EP	Old Description	
001	NA	001	Furnace #4	Removed
002	Furnace #6	002	Furnace #6	No change
004	NA	004	Furnace #12	Inoperable
005	NA	005	Furnace #13	Removed
007	NA	007	Reaction Ladle 13A	Removed
009	NA	009	Furnace #9	Inoperable
010	Furnace #15	010	Furnace #15	No change
011	Furnace #16	011	Furnace #16	No change
015a, 015b	Portable Crushers (2)	015	Portable Crushers (4)	2 Crushers Removed
016	Grizzly Screens (8)	016	Sizing	No change
019	Crushing and Sizing Plant #1 and #3	019	#4 Crusher & Screen	1 Plant Removed
020	Crushing and Sizing Plant #4 and #8	020	#5 Crusher & Screen	1 Plant Removed
021	Crushing and Sizing Plant #6	021	#6 Crusher & Screen	No change
023 023a 023b	Furnace #6 Cast Beds Noduloy Cast Beds Furnace #15-#16 Cast Beds	023	Slag and Metal Cast Beds	Reclassified as an insignificant activity
024	NA	024	Ladle Station	Ladle Station emissions covered under Furnace EP
025	Noduloy Crushing and Sizing Plant	025	#7 Crusher, Screen and Conveyor System	No change
026	Stabilizer Drying	026	Chemical Bath	No change
027	Stabilizer Sizing	027	Crushing & Sizing Unit	No change
028	Metal Pile Drying	022	Metal Dryer	Reclassified as an insignificant activity
--	Product Storage – Natural Gas	06	Ore Dryer	Reclassified as an insignificant activity

(1) **Type of control and efficiency**

Emissions of particulate matter and HAP metals are primarily controlled by baghouses. Emissions of particulate matter and HAP metals from the Noduloy Crushing & Sizing Plant (EP 025) are controlled by a venturi scrubber, and for the Stabilizer Drying (EP 026), such emissions are controlled by a cyclone.

(2) **Emission factors and their source**

Emissions of PM, PM10 and HAPs from the furnaces and material handling activities were estimated from material balances and engineering estimates, as provided by the permittee. Combustion emissions were estimated using emission factors from AP-42. See the detailed emission calculations in the Pollutants of Concern (POC) tables.

(3) **Applicable Regulations**

- (a) 401 KAR 59:010, *New Process Operations*, applies to each affected facility not subject to another emission standard for particulate matter (PM) in Chapter 59 of 401 KAR commenced on or after July 2, 1975. This rule applies to 015b, 019, 025, 026 and 027. Visible emissions shall not equal or exceed 20% opacity. Particulate emissions shall not exceed the allowable rates determined as follows:

For process rates up to 60,000 lb/hr:  $E = 3.59P^{0.62}$

For process rates in excess of 60,000 lb/hr:  $E = 17.31P^{0.16}$

Where E = rate of emissions in lb/hr, and  
P = process weight in tons/hr

- (b) 401 KAR 61:020, *Existing Process Operations*, applies to each affected facility that commenced before July 2, 1975. This rule applies to PM/PM<sub>10</sub> emissions and visible emissions from EP 015a, 016, 020 and 021. Visible emissions shall not equal or exceed 40% opacity. Particulate emissions shall not exceed the allowable rates determined as follows:

For process rates up to 60,000 lb/hr:  $E = 4.10P^{0.67}$

For process rates in excess of 60,000 lb/hr:  $E = 55.0P^{0.11} - 40$

Where E = rate of emissions in lb/hr, and  
P = process weight in tons/hr

- (c) 401 KAR 61:070, *Existing Ferroalloy Production Facilities*, is applicable to submerged electric arc furnaces which produce silicon metal, ferrosilicon, calcium silicon, silicomanganese zirconium, ferrochrome silicon, silvery iron, high-carbon ferrochrome, charge chrome, standard ferromanganese, silicomanganese, ferromanganese silicon, or calcium carbide; and dust-handling equipment.
- (d) 401 KAR 61:005, *General Provisions*, applies to any existing source for which a standard of performance has been promulgated under chapter 61.
- (e) 401 KAR 63:020, *Potentially Hazardous Matter or Toxic Substances*, applies to sources which emit or may emit potentially hazardous or toxic substances.

(4) **Non-applicable Regulations**

- (a) 401 KAR 63:002, Sections 2 and 3(1)(iii), which incorporates by reference 40 CFR 63.1650-63.1661 (Subpart XXX), *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Ferroalloys Production: Ferromanganese and Silicomanganese*, applies to all new and existing ferromanganese and silicomanganese production facilities that manufacture ferromanganese or silicomanganese. This regulation does not apply as the source has confirmed that silicon metal, ferromanganese and silicomanganese will not be manufactured. Also, this is not a major source of hazardous air pollutants as defined at 40 CFR 63.2.
- (b) 401 KAR 61:020, *Existing Process Operations*, does not apply to the furnaces at EP 002, 010 and 011, as these furnaces are subject to 401 KAR 61:070.
- (c) 401 KAR 60:005, which incorporates by reference 40 CFR 60 Subpart Z, *Standards of Performance for Ferroalloy Production Facilities*, is not applicable because the furnaces were not constructed or modified after October 21, 1974.
- (d) 401 KAR 60:005, which incorporates by reference 40 CFR 60 Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*, does not apply to the one (1) emergency generator, as an insignificant activity, since the unit was installed prior to July 11, 2005.
- (e) 401 KAR 59:015, *New indirect heat exchangers*, does not apply to EP 026 since it is a rotary dryer with direct heat contact.
- (f) 40 CFR 64, *Compliance Assurance Monitoring (CAM)*, does not apply to any emission unit because this source is being approved to operate under a Conditional Major permit and, pursuant to 40 CFR 64.2(a), the requirements of this rule are applicable only to a source required to obtain a Title V (Part 70 or 71) permit.

### **EMISSION AND OPERATING CAPS DESCRIPTION:**

Marshall County is designated as attainment for all criteria pollutants. To preclude the applicability of 401 KAR 52:020, *Title V Permits*, total annual source-wide emissions of particulate matter (PM/PM10), including emissions of insignificant activities, shall not exceed 99 tons per year on a consecutive 365 day basis.

Although the permit is conditioned to allow emissions of particulate matter (PM/PM10) in excess of 100 tons per year, pursuant to 401 KAR 59:010 and 401 KAR 61:020, the permittee voluntarily requested the federally enforceable PM/PM10 emissions limitation of less than or equal to 99 tons per year specified above. Accordingly, this approval is being issued as a conditional major operating permit, pursuant to 401 KAR 52:030.

### **PERIODIC MONITORING:**

In order to comply with the emission caps specified above, the permit requires the source to monitor and keep daily records of fuel usage, production rates, input rates, hours of operation, and emission rates of PM for the furnaces, portable crushers, Grizzly Screens, crushing and sizing plants and the stabilizing operations. Daily records of the emission rates of PM for the insignificant activities, as listed in the permit, shall also be maintained.

For the furnaces, the crushing and sizing plants #1 and #3, #4 and #8, and #6, and the stabilizer sizing operations, the maximum and minimum pressure drop across each particulate control device shall be monitored and recorded on a daily basis. For the furnace emission points, the maximum and minimum volumetric flowrate through each separately ducted hood of the capture systems shall be monitored and recorded on a daily basis. For the Noduloy crushing and sizing plant, the maximum and minimum pressure drop and water flow rate through the venturi scrubber shall be monitored and recorded daily. For the stabilizer drying operation, the maximum and minimum air flow rate through the cyclone shall be monitored and recorded daily. Qualitative visual observations of opacity shall be performed weekly of all stacks and raw material handling equipment. All records shall be reported semiannually.

### **CREDIBLE EVIDENCE:**

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.